Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method for determining a quality of an optical link, comprising:

identifying a known signal;

transmitting ~~and receiving~~ the known signal over ~~an~~ the optical link using a transmitting device associated with the optical link;

receiving a degraded known signal using a receiving device associated with the optical link, the degraded known signal resulting from degradation of the known signal due at least in part to the transmitting over the optical link;

comparing the ~~received~~ degraded known signal to ~~the known~~ a reference signal using optical correlation, the reference signal being a suitable encoded representation of the known signal; and

determining a quality of signal of the optical link based on the comparison ~~without regard to a history of transmission errors~~.

2. (Currently amended) The method of claim 1, wherein comparing includes correlating the ~~received~~ degraded known signal $r(t)$ with the ~~known~~ reference signal $s(t)$, where t represents time, using the function $c(t) = \int_{-\infty}^{\infty} s(t)r(t-\tau)dt$, where τ represents a time delay.

3. (Currently amended) The method of claim 1, wherein comparing includes optical correlation implemented in a discrete system by sampling the ~~received~~ degraded known signal N times, according to the function $c(t) = \sum_{k=0}^{N-1} s_k r(t-k\tau_k)$, where τ represents a time delay.

4. (Previously presented) The method of claim 1, wherein the determining includes determining an attenuation associated with the optical link.

5. (Previously presented) The method of claim 1, wherein the determining includes determining a dispersion associated with the optical link.

6. (Previously presented) The method of claim 1, wherein the determining includes determining a noise associated with the optical link.

7. (Previously presented) The method of claim 1, wherein the determining includes determining a jitter associated with the optical link.

8. (Currently amended) The method of claim 1, wherein the receiving includes sending the ~~received~~ degraded known signal to a delay line having a plurality of taps producing a plurality of tapped signals and the comparing includes ~~comparing~~ applying a predetermined weight to each of ~~a~~ the plurality of tapped ~~received~~ signals, the corresponding plurality of predetermined weights relating the reference signal to the known signal.

9. (Previously presented) The method of claim 1, wherein the optical correlation is completed in approximately four bit periods.

10. (Previously presented) The method of claim 1, wherein the optical correlation is completed in approximately eight bit periods.

11. (Previously presented) The method of claim 1, wherein the determining includes evaluation of a curvature of a correlation peak function.

12. (Previously presented) The method of claim 1, wherein the determining includes evaluation of a shape of a first correlation function.

13. (Previously presented) The method of claim 1, wherein the determining includes evaluation of a peak height and peak location in a correlation function over a plurality of samples.

14. (Currently amended) A method for determining a quality of an optical link, comprising:

identifying a known signal;

transmitting ~~and receiving~~ the known signal over ~~an~~ the optical link using a transmitting device associated with the optical link;

receiving a degraded known signal using a receiving device associated with the optical link, the degraded known signal resulting from degradation of the known signal due at least in part to the transmitting over the optical link;

~~comparing~~ correlating the ~~received~~ degraded known signal to ~~the known~~ a reference signal using optical correlation, the reference signal being a suitable encoded representation of the known signal; and

determining a quality of the optical link based on the correlating~~comparison without regard to a bit error rate associated with the optical link~~.

15. (Canceled)

16. (Previously presented) The method of claim 14, wherein the determining includes at least one of determining an attenuation associated with the optical link and determining a dispersion associated with the optical link.

17. (Previously presented) The method of claim 14, wherein the determining includes determining a noise associated with the optical link.

18. (Previously presented) The method of claim 14, wherein the determining includes determining a jitter associated with the optical link.

19. (Currently amended) A method for determining a quality of an optical link, comprising:

identifying a known signal;

transmitting ~~and receiving~~ the known signal over ~~an~~ the optical link using a transmitting device associated with the optical link;

receiving a degraded known signal using a receiving device associated with the optical link, the degraded known signal resulting from degradation of the known signal due at least in part to the transmitting over the optical link;

~~comparing~~ correlating the ~~received~~ degraded known signal to ~~the known~~ a reference signal using optical correlation; and

determining a quality of the optical link based on the correlating~~comparison without using eye diagram techniques~~;

wherein the reference signal is a suitable encoded representative of the known signal.

20. (Canceled)

21. (New) The method of claim 19, further including:

sending the degraded known signal to a delay line having a plurality of taps, a corresponding plurality of weighting elements associated with the reference signal, and a summer;

producing a plurality of time-shifted signals associated with the degraded known signal and the plurality of taps;

producing a plurality of weighted signals associated with the plurality of weighting elements and the plurality of time-shifted signals; and

summing the plurality of weighted signals to produce a resulting signal;

wherein the plurality of weighting elements and the corresponding plurality of weighted signals define a function relating the reference signal to the known signal such that the resulting signal is indicative of the quality of the optical link.

22. (New) The method of claim 19, further including:

receiving the degraded known signal at an optical correlator;

producing a plurality of time-shifted signals, each time-shifted signal delayed in time from the degraded known signal via a delay line having a plurality of successive taps, each

successive tap producing a time-shifted signal that is delayed by a basic delay increment from the preceding signal;

applying a predetermined weighting element associated with the reference signal to each time-shifted signal to produce a plurality of weighted signals, wherein the combined weighting elements define a function for the reference signal relating the reference signal to the known signal; and

summing the plurality of weighted signals to produce a resulting signal indicative of the quality of the optical link.